



# Dengue Basics



**U.S. Department of  
Health and Human Services**  
Centers for Disease  
Control and Prevention



# INTRODUCTION



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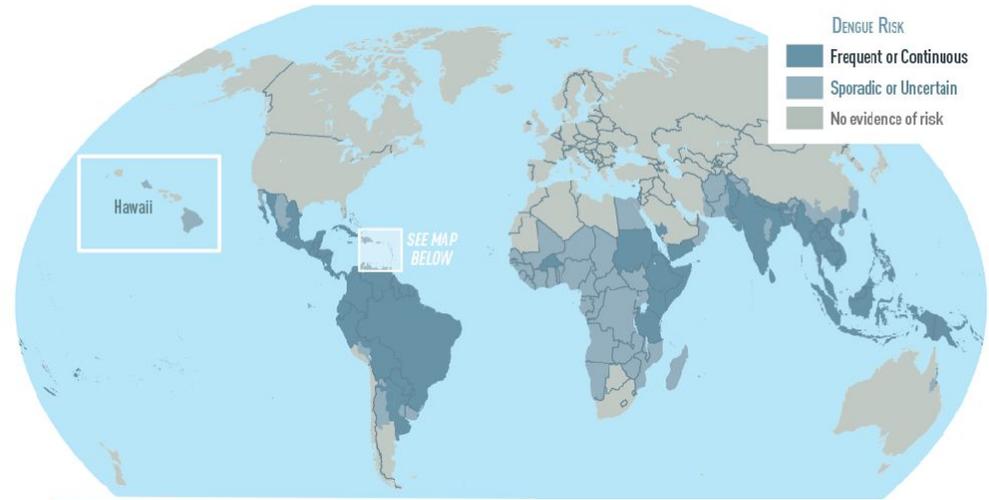
# About dengue



- Dengue is caused by one of any of four related viruses: Dengue virus 1, 2, 3, and 4.
  - >> A person can be infected with a dengue virus as many as four times in his or her lifetime.
  - >> Not everyone with dengue gets sick.
  - >> For those who do get sick, illness can be mild or severe.

# Where is dengue found?

- **40%** of the world's population, about **3 billion** people, live in areas with a risk of dengue.
- Each year, up to 400 million people get infected with dengue.
  - >> Approximately 100 million people get sick from infection, and 22,000 die from severe dengue.

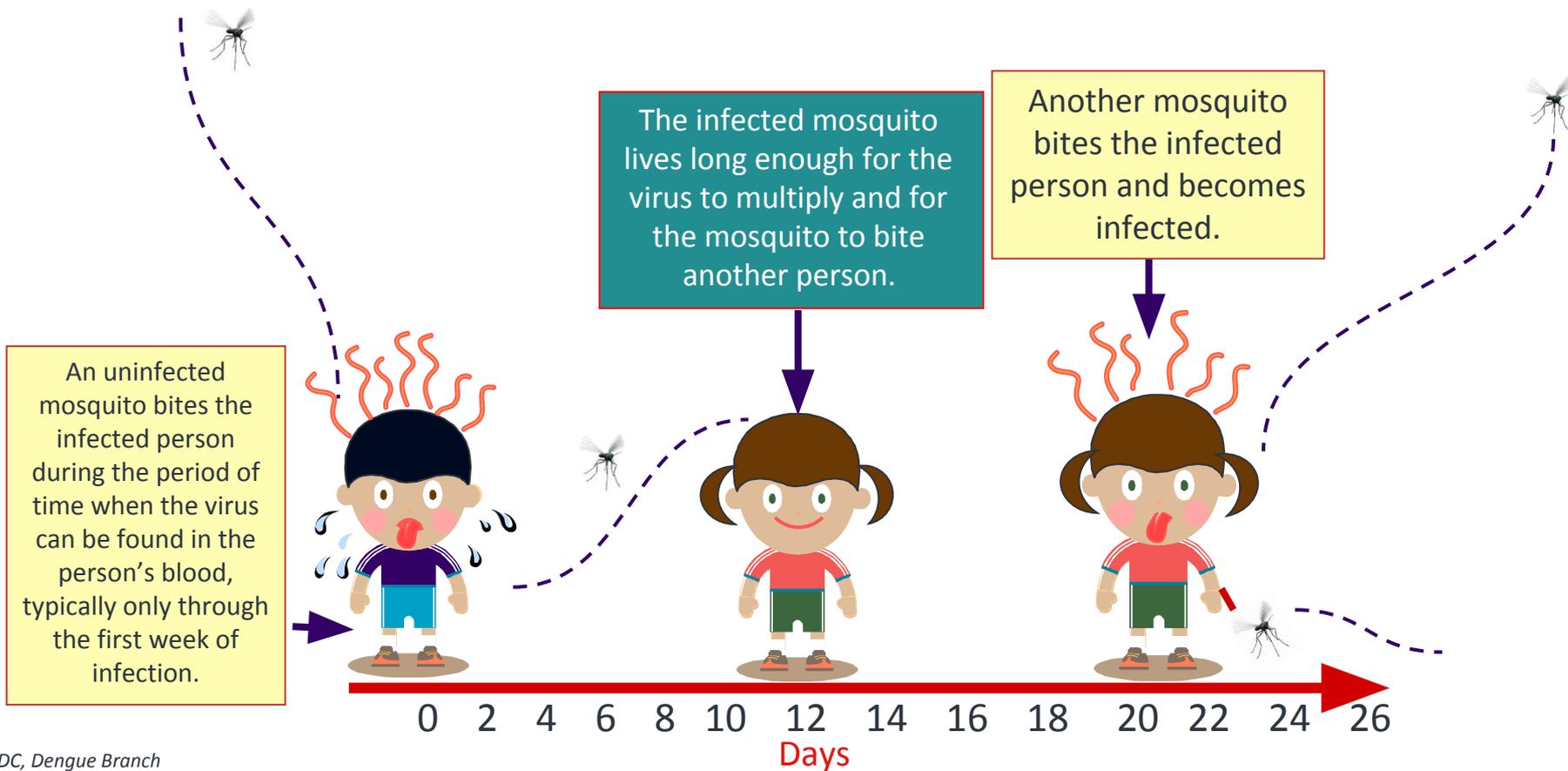


# SPREAD AND SYMPTOMS

# How is dengue spread?

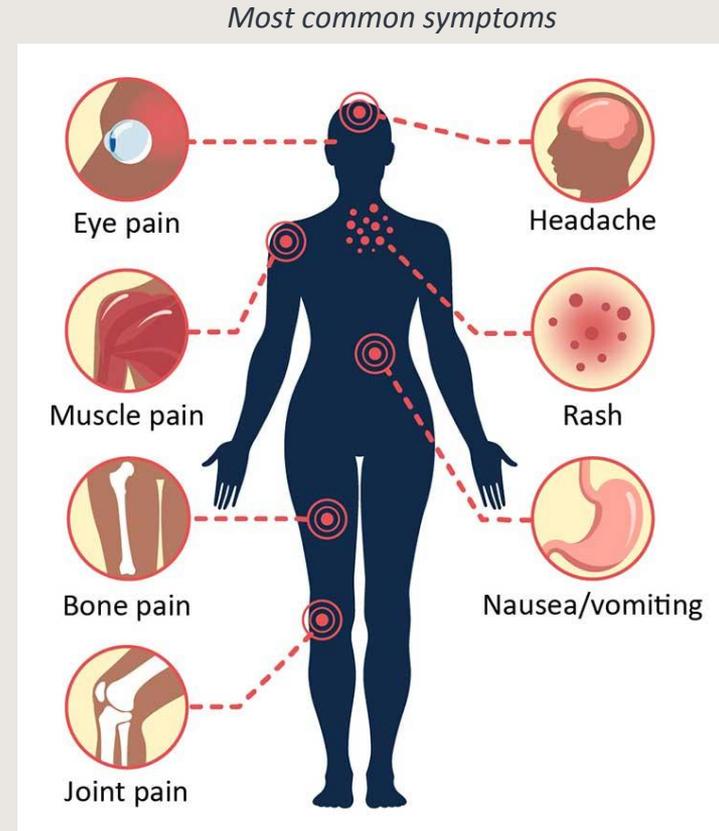
- Dengue can be spread through
  - >> Mosquito bites
  - Less commonly:
    - >> From a pregnant woman to her fetus
    - >> Infected blood, laboratory, or healthcare setting exposures

# How mosquitoes spread dengue



# Dengue symptoms

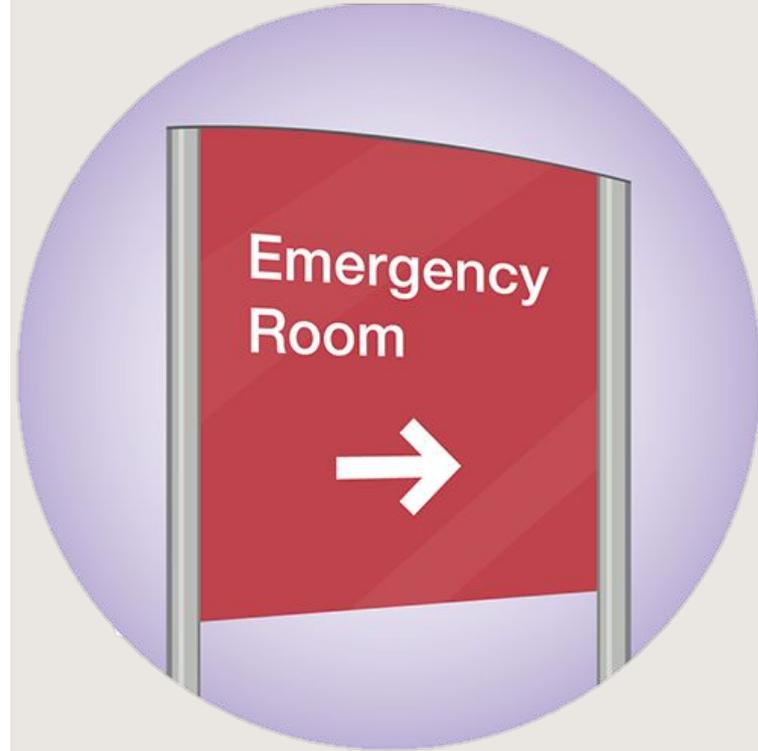
- 1 in 4 people infected with dengue will get sick.
- For people who get sick with dengue, symptoms can be mild or severe.
- The most common symptom is **fever**, with any of the following:
  - >> Nausea, vomiting
  - >> Rash
  - >> Aches and pains (eye pain, typically behind the eyes, muscle, joint, or bone pain)
  - >> Any warning sign
- Symptoms typically last 2–7 days. Most people will recover after about a week.



# Symptoms of severe dengue

## Warning signs of severe dengue

- Warning signs generally begin in the 24–48 hours after your fever has gone away.
- If you or a family member develops **any** of the following symptoms, immediately go to a local clinic or emergency room:
  - » Stomach or belly pain, tenderness
  - » Vomiting (at least 3 times in 24 hours)
  - » Bleeding from the nose or gums
  - » Vomiting blood, or blood in the stool
  - » Feeling tired, restless, or irritable





# TESTING



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# Testing for dengue



- Anyone who has symptoms of dengue should be tested.
- Dengue is diagnosed through a blood test.



# WHAT TO DO IF YOU HAVE DENGUE



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# Treatment

- There is no specific medication to treat dengue.
- See a healthcare provider if you develop a fever or have symptoms of dengue.
  - >> Tell him or her about your travel.
- **Rest** as much as possible.
- **Take acetaminophen** (also known as paracetamol outside of the United States) to control fever and relieve pain.
  - >> Do not take aspirin or ibuprofen!
- **Drink plenty of fluids** such as water or drinks with added electrolytes to stay hydrated.



# PREVENTION



# Prevent mosquito bites

## Use Insect Repellent

- Use Environmental Protection Agency (EPA) with one of these active ingredients.
  - >> DEET
  - >> Picaridin (known as KBR 3023 and icaridin outside the US)
  - >> IR3535
  - >> Oil of lemon eucalyptus (OLE)
  - >> Para-menthane-diol (PMD)
  - >> 2-undecanone
- **Wear long-sleeved shirts and long pants**



### Tips

- Always follow the product label instructions.
- Reapply insect repellent as directed.
  - ✓ Do not spray repellent on the skin under clothing.
  - ✓ If you are also using sunscreen, apply sunscreen first and insect repellent second.

# Prevent mosquito bites

## Tips for babies and children

- Always follow instructions when applying insect repellent to children.
- Do not use insect repellent on babies younger than 2 months old.
  - >> Instead, dress your child in clothing that covers arms and legs.
  - >> Cover strollers and baby carriers with mosquito netting.
- Do not use products containing oil of lemon eucalyptus (OLE) or para-menthane-diol (PMD) on children under 3 years old.
- Adults: Spray insect repellent onto your hands and then apply to a child's face.
  - >> Do not apply insect repellent to a child's hands, eyes, mouth, cuts, or irritated skin.



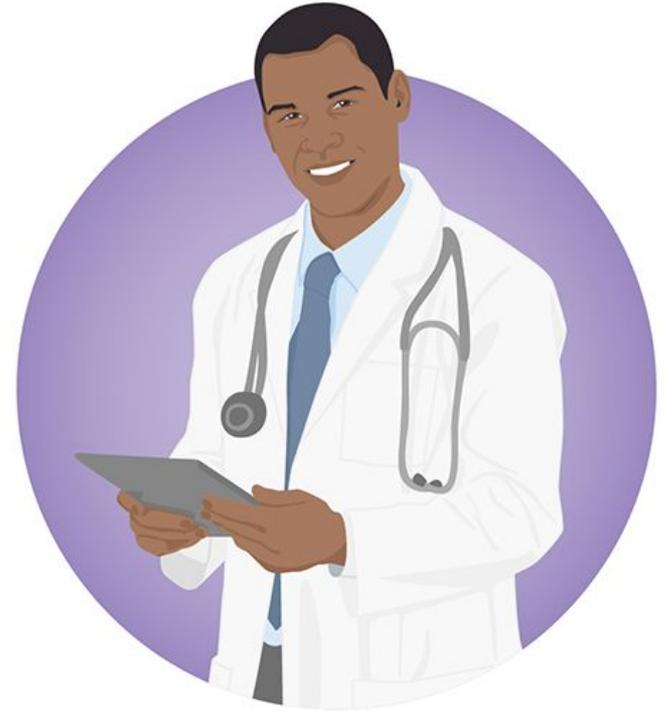
# Dengue vaccine in the United States

- In May 2019, Dengvaxia® was approved by the U.S. Food and Drug Administration (FDA) in the United States for use in children 9-16 years old living in an area where dengue is common (the US territories of American Samoa, Puerto Rico and the US Virgin Islands), with laboratory confirmed prior dengue virus infection.
- Information on the vaccine's availability in the US territories is pending.



# Global dengue vaccine

- A vaccine to prevent dengue (Dengvaxia®) is licensed and available in some countries for people ages 9-45 years old.
- The World Health Organization (WHO) recommends that the vaccine only be given to persons with confirmed prior dengue virus infection.



# MOSQUITO CONTROL



# About mosquitoes

- Mosquitoes bite during the day and night.
- Female mosquitoes lay eggs in containers with standing water.
  - >> Artificial containers: buckets, bowls, animal dishes, flower pots, and vases.
  - >> Natural containers: plants, trees
- It takes about a week for an egg to become an adult mosquito.



# Control mosquitos outside the home

## Remove standing water where mosquitoes could lay eggs

- Once a week,
  - >> empty
  - >> scrub,
  - >> turn over, cover, or throw out any items that hold water.
- Mosquitoes lay eggs near water. Some items that can hold water are:
  - >> tires
  - >> buckets
  - >> planters
  - >> toys
  - >> pools
  - >> birdbaths
  - >> flowerpot saucers
  - >> trash containers
- Tightly cover water storage containers (buckets, cisterns, rain barrels) so that mosquitoes cannot get inside to lay eggs.



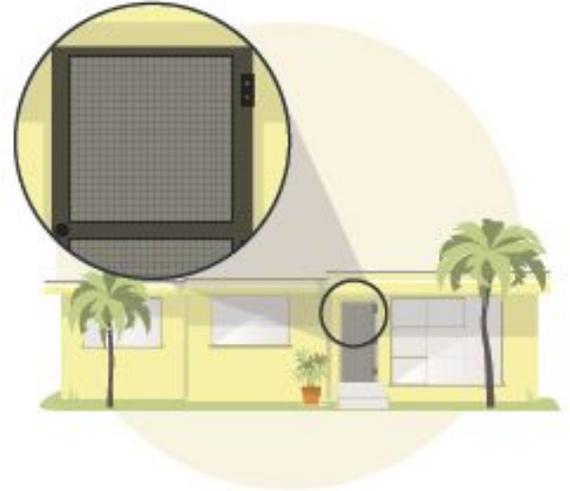
# Control mosquitos outside the home

- For containers without lids, use wire mesh with holes smaller than an adult mosquito.
- Use larvicides to treat large containers of water that will not be used for drinking and cannot be covered or dumped out.
- If you have a septic tank, repair cracks or gaps. Cover open vent or plumbing pipes. Use wire mesh with holes smaller than an adult mosquito.



# Control mosquitoes inside the home

- Use screens on windows and doors.
  - >> Repair holes in screens to keep mosquitoes outdoors.
- Stop mosquitoes from laying eggs in or near water.
  - >> Once a week, empty and scrub, turn over, cover, or throw out items that hold water.
  - >> Kill mosquitoes inside your home using indoor insect fogger or indoor insecticide to kill mosquitoes and treat areas where they rest.
    - These products work immediately and may need to be reapplied.
    - Always follow label directions.
    - Only using insecticide will not keep your home free of mosquitoes.



## Wrapping up...

- Dengue is primarily spread through mosquito bites.
- You can protect yourself and your family from mosquito bites by:
  - >> Using insect repellent
  - >> Wearing long-sleeved shirts and long pants
- Once a week, empty, scrub, turn over and cover, or throw out any items that hold water to control mosquitoes inside and outside your home.
- If you get sick, see your doctor.

**QUESTIONS?**